Release Notes

QLogic OFED+ Host Software

Table of Contents

1 Version

These release notes describe the changes, fixes, known issues, and release details that apply to the QLogic OFED+ Host software package, version 7.0.0.0.35.

2 Changes

The following sections describe the changes that have been made to the QLogic OFED+ Host software package between versions 6.1.0.0.72 and 7.0.0.0.35, including the following releases:

- 6.1.0.0.72
- 7.0.0.0.35

For detailed information about any of the previous releases listed, refer to the Release Notes for the specific version.

2.1 Changes to Hardware Support

Added hardware support for the following releases:

- Release 6.1.0.0.72
  - QME7362 is supported
  - SL390 G7 is supported
- Release 7.0.0.0.35
  - None

2.2 Changes to OS Support

Added operating system (OS) support for the following releases:

- Release 6.1.0.0.72
  - Red Hat EL6 X86_64 (AMD Opteron and Intel EM64T):
    - (Base) 2.6.32-71.el6.x86_64
- Release 7.0.0.0.35
  - Red Hat EL5 X86_64 (AMD Opteron and Intel EM64T):
    - (Update 6) 2.6.18-238.el5
  - Red Hat EL6 X86_64 (AMD Opteron and Intel EM64T):
    - (Update 1) 2.6.32-131.0.15.el6.x86_64
  - CentOS X86_64 (AMD Opteron and Intel EM64T):
    - (Update 5.6) 2.6.18-238.el5
    - (Update 6.0) 2.6.32-71.el6.x86_64
  - Scientific Linux X86_64:
    - (Update 5.6) 2.6.18-238.el5
    - (Update 6.0) 2.6.32-71.el6.x86_64

- Platform Cluster Manager 3.0 Standard Edition:
  - (RHEL 5.6) 2.6.18-238.el5
  - (SLES 11 SP1) 2.6.32.12-0.7-default

- Platform Cluster Manager 3.0.1 Dell Edition:
  - (RHEL 6.1) 2.6.32-131.0.15.el6.x86_64

See list of supported Operating Systems in Section 5.

2.3 Changes to Software Components

Changes made to the software components for the following releases:

- Release 6.1.0.0.72
  - QLogic OFED+ Software
  - QLogic InfiniBand Tools Software
- Release 7.0.0.0.35
  - QLogic OFED+ Software
  - QLogic InfiniBand Tools Software

2.4 Changes to Industry Standards Compliance

The following table shows each Basic OFED version that is support and the QLogic OFED+ Releases that include each:

Basic OFED Software Package Supported	QLogic OFED+ Host Software Package
Version 1.5.3 (Refer to Release 6.1.0 Features for more information)	Release 6.1.0.0.72 and 7.0.0.0.35

3 Bug Fixes

The following fixes have been made to the QLogic OFED+ Host software package between versions 6.1.0.0.72 and 7.0.0.0.35.

- Fixed in Release 6.1.0.0.72
  - When running bidirectional traffic on a QLogic Host Channel Adapter in unreliable connection (UC) mode on certain server types, the Ethernet connection does not drop nor does the adapter exhibit panics.
  - In this release (6.1.0), OFED has been updated to OFED 1.5.3 and the `ib_send_bw` microbenchmark that comes with OFED 1.5.3 does not need the `-a` option to run properly without hanging.
  - In this release (6.1.0), VNIC drivers are no longer supported. Therefore all VNIC known issues are closed.
  - In this release (6.1.0), Red Hat Enterprise Linux (RHEL) 4 is no longer supported. Therefore all RHEL4 known issues are closed.
- Fixed in Release 7.0.0.0.35
  - `unregister_netdevice` hangs while restarting VNIC service on the host with a TrueScale Host Channel Adapter when using a gateway. This is a known issue in the Linux kernel in all releases prior to 2.6.27. VNIC drivers are no longer supported. Therefore all VNIC known issues are closed.
  - When canceling out of a Host Channel Adapter firmware update, the following message is no longer shown:

    ```
    HCA update failed. Return code: 1 at /usr/bin/qlgc_firmware_tool line
    264, STDIN line 2.
    ```

  - When using `opensm`, the Node Description reported for hosts after they are rebooted is no longer incorrect.
  - The known issue that when a long `netperf` test is run between hosts using QLE7240 and QLE7280 DDR Host Channel Adapters, the PM is unable to get or set port counters for these Host Channel Adapters is no longer a supported scenario.

- When running the OFED performance benchmark `qperf` to test the bandwidth of Unreliable Datagram (UD) traffic, the command no longer hangs or times out intermittently when using an InfiniBand MTU of 4096 bytes and the '`-t 10`' (or larger number of seconds).
- When performing an IFS installation on SLES 11 SP1, the message similar to the following no longer appears:

  ```
  WARNING: -e needs -E or -F
  ```

- On SLES 11 or SLES 11 SP1 environments, when running `qperf rc_bi_bw` or `rc_rdma_read_lat` tests, the system no longer has a kernel panic causing it to drop a vmcore file and reboot. This kernel panic does not occur with OFED 1.5.3.
- Running MPI microbenchmarks over verbs does not exhibit low performance using the `osu_bw` and `osu_bibw` tests.

4 Known Issues

The QLogic OFED+ Host software package, version 7.0.0.0.35, has the following known issues:

Known Issue	Workaround
When a port is down and does not have a LID assigned, `clear_p1stats` or `clear_p2stats` will fail against the given port.	None
For SLES10 and 11, the `--32bit` option of INSTALL does not work. For individual Red Hat Package Manager (RPM) installs, SLES10 and 11 do not distinguish between 32-bit and 64-bit RPMs.	Installed RPMs that are 32-bit must be manually uninstalled first and then the appropriate RPM for each package (only 64 bit if available) must be installed. QLogic recommends using `./INSTALL`, which automatically performs all necessary uninstalls of old RPMs prior to installing the new 64-bit RPMs.
When reinstalling QLogic OFED+, it may try to stop existing instances of `opensm`. If `opensm` is not presently running, it will report: `Stopping IB Subnet Manager [FAILED].`	QLogic recommends using the QLogic Fabric Manager. If the QLogic Fabric Manager is installed instead of opensm, this error will not occur.
When using vFabric, the OFED `saquery` command may use the wrong P-Key and timeout waiting for responses.	QLogic recommends using the `iba_saquery` tool, which is included with QLogicIB-Basic or QLogicIB-IFS. `iba_saquery` will work properly when vFabric is configured.
If `LD_LIBRARY_PATH` is exported inconsistently with the version of `openmpi` being used, applications may build or run incorrectly. This issue can impact FastFabric tools that use MPI, rebuilding of mpi apps, or rebuilding `openmpi` itself using the `do_build` or `do_openmpi_build` tools.	When using `openmpi`, make sure `PATH` and `LD_LIBRARY_PATH` are not exported specifying a different path than the `openmpi` path that is being used. The mpi-selector can configure a `LD_LIBRARY_PATH` for subsequent logins. `openmpi` does not require the `LD_LIBRARY_PATH` to be set.
When using `opensm`, after bouncing ports on a node, the port may not return to an active state for a period of time. As a result, commands that issue an SA query such as OFED's `saquery` command, or various FastFabric tools such as `iba_report` and `iba_saquery`, may hang waiting for the port to become active and the SA to respond.	Restart opensm. QLogic recommends using the QLogic Fabric Manager, which has much greater resiliency and quicker handling of port state changes.

Known Issue	Workaround
Test `rdma_bw` fails if it detects conflicting CPU frequencies.	Ensure that the same cpu frequancies are at both ends when using rdma_bw.
When using vFabric to change an IPoIB application from Networking to Non-Networking, the IPoIB interface may remain in a running state.	After changing the application, restart the network services or bring the interface down/up to force IPoIB to re-query the SM and correct the situation.
When installing the QLogic-Basic or QLogic-IFS SW on SLES10SP3, there may be conflicts with software that is already installed on the system. The following message may appear: `error: %preun(ofed-1.4.1-0.14.9.x86_64) scriptlet failed, exit status 1`	Manually uninstall the old version OFED before you install the newer software. As root, run the following command: `rpm -e --noscripts ofed` Re-run the normal installation.
When uninstalling MVAPICH2 (for verbs or PSM), some files under the `/usr/mpi/*/mvapich2*/` directory tree that are created at runtime by MVAPICH2 may not be removed. One example is `mpdlib.pyc`.	After uninstalling, remove any undesired files left in the `/usr/mpi/` directory.

When installing the QLogic-Basic or QLogic-IFS SW on SLES11SP1, there may be conflicts with software that is already installed on the system. The following message may appear:
 	
`error: %preun(ofed-1.4.2-0.9.6.x86_64) scriptlet failed, exit status 1`
`error: %preun(opensm-3.2.6_20090317-0.1.42.x86_64)scriptlet failed, exit status 1`
`Unable to uninstall previous OFED RPMs`
	Manually uninstall the old version OFED before you install the newer software.
	
	1. As root, run the following command:
	
	`rpm -e --noscripts ofed`
	
	2. Re-run the normal installation.

After installing IFS on a Lustre1.8.5 patched kernel ,there can be a lot of messages in `dmesg` from `ib_iser` complaining about Unknown symbol.	Disabling `iscsi` and `iscsid` via `chkconfig` resolves the issue.

When installing Moab, the following error is seen:
 	
`[nsgib103 .ssh (Thu May 12 05:43:36)]# ldconfig`
 	
`ldconfig: /usr/local/lib/libsqlite3.so.0 is not a symbolic link`
	Move/Delete libsqlite3.so.0 files and execute `ldconfig` command.
	`ldconfig` can create symbolic link properly and the error message will not appear.

LSF job submission does not work correctly with PCM	Obtain the patched binaries for "blaunch" and "res" from Platform which has made the files available as "blaunch.706" and "res.706". Replace these two files on all the nodes in the cluster. The directory locations of the files are:
	
	`/opt/lsf/7.0/linux2.6-glibc2.3-x86_64/bin/blaunch`
	
	`/opt/lsf/7.0/linux2.6-glibc2.3-x86_64/etc/res`

The Command Task dropdown in the PCM GUI does not always show all of the options properly.	None

Known Issue	Workaround

When installing the QLogicIB on a freshly kick-started RHEL 6 node, QLogic MPI programs will not run.	When using QLogic MPI on RHEL 6 or later RedHat distributions the following compatibility gfortran library RPMs must be installed:
	
	`compat-libgfortran-41-4.1.2-39.el6.i686.rpm`
	
	`compat-libgfortran-41-4.1.2-39.el6.x86_64.rpm`
	
	These RPMs are provided by the RHEL distribution. If these RPMs are not installed QLogic MPI programs will fail to run due to not finding the `libgfortran.so.1` dynamic library.

The FastFabric and Fabric Viewer options do not show on the PCM GUI with RHEL 5.6 and SLES 11 SP1.	Refer to Section 5.5 for special instructions to install the PCM on a system with RHEL 5.6 or SLES 11 SP1 OSs.

5 Additional Information

5.1 Included in this Release

- QLogic OFED+ Host software package (7.0.0.0.35) that includes:
  - QLogic OFED+ (1.5.3.0.41)
  - QLogic InfiniBand Tools (7.0.0.0.25)

5.2 Operating Systems Supported in this Release

The following operating systems (X86_64) are supported in this release:

- Red Hat EL5 X86_64 (AMD Opteron and Intel EM64T):
  - (Update 4) 2.6.18-164.el5, 2.6.18-164.6.1.el5, 2.6.18-164.9.1.el5
  - (Update 5) 2.6.18-194.el5, 2.6.18-194.3.1.el5
  - (Update 6) 2.6.18-238.el5

- Red Hat EL6 X86_64 (AMD Opteron and Intel EM64T):
  - (Base) 2.6.32-71.el6.x86_64
  - (Update 1) 2.6.32-131.0.15.el6.x86_64

- SuSE Linux Enterprise Server (SLES) 10.0 X86_64 (AMD Opteron and Intel EM64T):
  - (SP3) 2.6.16.60-0.54.5-smp, 2.6.16.60-0.54.5-debug, 2.6.16.60-0.54.5-default

- SuSE Linux Enterprise Server (SLES) 11.0 X86_64 (AMD Opteron and Intel EM64T):
  - (SP1) 2.6.32.12-0.7-default

- CentOS X86_64 (AMD Opteron and Intel EM64T):
  - (Update 5.4) 2.6.18-164.el5
  - (Update 5.5) 2.6.18-194.el5
  - (Update 5.6) 2.6.18-238.el5
  - (Update 6.0) 2.6.32-71.el6.x86_64

- Scientific Linux X86_64:
  - (Update 5.4) 2.6.18-164.el5
  - (Update 5.5) 2.6.18-194.el5
  - (Update 5.6) 2.6.18-238.el5
  - (Update 6.0) 2.6.32-71.el6.x86_64

- Rocks:
  - (Rocks 5.3.2) 2.6.18-194.el5, 2.6.18-194.3.1.el5

- Platform Cluster Manager 3.0 Standard Edition:
  - (RHEL 5.6) 2.6.18-238.el5
  - (SLES 11 SP1) 2.6.32.12-0.7-default

- Platform Cluster Manager 3.0.1 Dell Edition:
  - (RHEL 6.1) 2.6.32-131.0.15.el6.x86_64

CPU model of Linux kernel can be identified by `uname -m` and `/proc/cpuinfo` as follows:

Model	Uname	/proc/cpuinfo
EM64T	x86_64	Intel CPUs
Opteron®	x86_64	AMD CPUs

NOTE: Other combinations (such as i586 uname) are not currently supported.

5.3 Lustre and GPFS Versions Verified for this Release

The following Lustre versions are confirmed for this release:

- Lustre 1.8.5 with QLogic OFED+ running on RHEL 5.5, and SLES 11 SP1

The following GPFS versions are confirmed for this release:

- GPFS 3.3 with QOFED+ running on RHEL5.5 and SLES11 sp1
- GPFS 3.4 with QOFED+ running on RHEL5.5 and SLES11 sp1

5.4 InfiniBand Host Channel Adapters Supported in this Release

The following models of Host Channel Adapters are supported:

- QLE7240-V1
- QLE7280-V1
- QLE7340
- QLE7342
- QME7342
- QMH7342
- QME7362
- MHQH29-XTC
- MHQH29B-XTR
- MHQH19-XTC
- MHQH19B-XTR
- NC543i (HP SL390 G7 in-built InfiniBand HCA)
- 46M2199
- 46M2203

5.5 Special PCM Installation for RHEL 5.6 and SLES 11 SP1

Platform PCM 3.0 Standard Edition for RHEL 5.6 and SLES 11 SP1 requires an updated RPM to enable the QLogic GUI (portal) menu items for launching FastFabric and Fabric Viewer. The RPM can be obtained from Platform Computing's web site. Once installed, these menu items are available in the **Common Tasks** drop down menu on the Platform portal main screen (dashboard view).

To install the PCM using the builds, use the following instructions:

1. Set up head (Installer) node with RHEL5.6 or SLES 11 SP1 by following the instructions in the *Installing Platform HPC guide* (`Platform_hpc_install.pdf` file).
2. Copy the build required for your distribution iso file, the portal RPM file, the QLogic IFS and OFED kit files, and the license file to the installer node as root.
3. Mount the iso file (with -o loop option) for the build required for your distribution and run the pcm-installer to get started. Perform the installation procedure in Section 7 of the *QLogic Fabric Software Installation Guide*. Remember to remove the following two PCM kits:

   ```
   platform-hpc-high-performance-computing-tools
   platform-ofed
   ```

   and to add the QLogic IFS and OFED kits (be sure to use the required for your distribution).
4. Let the PCM installation finish, and add the compute nodes as per PCM instructions.
5. Replace the portal RPM with the patch that enables the QLogic FF and FV menu items as follows:
   a. Log on installer node as root, remove the old rpm package:

      ```
      # rpm -e platform-hpc-web-portal --nodeps
      ```

   b. Back up the QLogic GUI files (an XML file and the FV Java applet files):

      ```
      # cd /usr/share/pmc; tar cvzf ~/qlogic_gui.tgz
      gui/3.0/tomcat/webapps/platform/customApplets/FabricViewer
      gui/conf/custom/menu/QLogicButtons.xml; cd -
      ```

   c. Remove all old installtion files:

      ```
      # rm -rf /usr/share/pmc/*
      ```

   d. Install the updated rpm package (from the Platform Computing web site):

      ```
      # rpm -ivh platform-hpc-web-portal-VERSION-Date.x86_64.rpm
      ```

   e. Restore the QLogic GUI files:

      ```
      # cd /usr/share/pmc; tar xvzf ~/qlogic_gui.tgz; cd -
      ```

   f. Run the integration command to setup the GUI:

      ```
      # /opt/kusu/bin/kusurc
      ```

   g. Register license using hpc-license-tool command.
   h. Login the web portal and check the new features.

5.6 New Features

The following are the new features for the QLogic OFED+ Host software package.

5.6.1 Release 7.0 Features

- New automatic performance tuning utility: `ipath_perf_tuning` can be run as root to set the qib driver parameters in the `modprobe.conf` file. It can be run without parameters to do a minimal, safe amount of tuning, or the *OFED+ Host Software User Guide* describes how to run it interactively to tune node performance for more situations, such as to improve parallel storage performance, or to turn off unneeded services.
- The QLogic Congestion Control Architecture (CCA) uses the Performance Scaled Messaging (PSM) library which is included within QLogic OFED+. The QLogic Fabric Manager is required to enable and manage QLogic CCA. For information about the QLogic CCA, refer to the "Fabric Manager Features, Release 7.0" section in the *QLogic InfiniBand Fabric Suite Software Release Notes* and the *QLogic Fabric Manager User Guide*.

5.6.2 Release 6.1.0 Features

- QLogic OFED+ Host software version 6.1 has been tested with, and fully supports, OpenFabrics Enterprise Distribution (OFED) 1.5.3, including the QLogic patch sent to OFED for their 1.5.3.1 patch release.

  Important note: As a result of a software fix from QLogic needed to correct a problem introduced by Mellanox, the full OFED release number is 1.5.3.1. The 1.5.3.1 package is a complete release of OFED 1.5.3 plus the minor software fix.

- The OFED mlx4 Driver is now a separately selectable component identified by `ofed_mlx4`. It can also be separately selected to autostart. QLogic recommends when installing QLogic HCAs in systems with Mellanox 10GE NIC LOM, not to install the OFED mlx4 Driver component so that the proper 10GE mlx4_core driver will be used. The "iba" component will continue to include the mlx4 driver; however the "ib_stack" component no longer includes mlx4.

- Patch for support for NVIDIA 3.x releases is now included in the tgz. To install on systems with NVIDIA GPUs, see the `README-first.txt` file in `QLogicIB-*/NVIDIA`.

5.7 Product Constraints

- The version of OpenMPI shipped with QLogicIFS is incompatible with the Performance Application Programming Interface ("papi") libraries available in RedHat Enterprise version 6. If you try to recompile the provided version of OpenMPI on RedHat 6 you will first have to uninstall any installed version of papi-4.x. Older versions of papi (papi-3.x) are still compatible with the shipped version of OpenMPI.

- All installation and uninstallation of QLogic OFED+ Host software package components must be performed using the `./INSTALL` or `iba_config` commands. If software is manually installed or uninstalled using other methods (RPM, other scripts, and so on), the installation on the system could become inconsistent and cause unreliable operation, in which case subsequent runs of `./INSTALL` or `iba_config` may make incorrect conclusions about the configuration of the system and consequently make incorrect recommendations. If the system becomes inconsistently configured, QLogic recommends running the `./INSTALL` TUI and selecting `ReInstall` on all components. Once the re-installation has started, carefully review all prompts and choices.

- On SuSE systems, `NETWORKMANAGER` must be set to "no" in `/etc/sysconfig/network/config`. This is the default setting.

- The mpirun command in this release is not compatible with nodes running InfiniPath releases prior to version 2.2.1.

- OFED SDP has not been qualified for this release. IPoIB is recommended for data transfers.

5.8 Product Limitations

- QLogic products will auto-negotiate with devices that utilize IBTA-compliant auto-negotiation. When attaching QLogic products to a third-party device, the bit error rate is optimized if the third-party device utilizes attenuation-based tuning.

- At the time of this release, Oracle has not certified InfiniBand adapters for RDS. As a result, QLogic is unable to extend support for RDS.

- At the time of this release, the PathScale Compiler Suite is not supported for SLES11. As a result, QLogic is unable to extend support for this environment.

5.9 Other Information

- When using Mellanox Host Channel Adapters, any changes to Virtual Fabrics (vFabrics) in the Fabric Manager, may require a reboot of the hosts with Mellanox Host Channel Adapters. This limitation relates to the Mellanox Host Channel Adapters not properly responding to changes to the Fabric Manager service level (SL). For some vFabric configuration changes, if the Fabric Manager SL changes or is mapped to a different Virtual Lane (VL) than previously, the Mellanox Host Channel Adapter can continue to use the previous VL. If that VL is presently disabled by the Fabric Manager, future uses of applications which use the Fabric Manager SL may hang or timeout because there are no VL Arbitration cycles for that VL. As a result, anytime vFabric configuration is changed, it is recommended to reboot all hosts with Mellanox Host Channel Adapters so that the desired Quality of Service (QoS) configuration changes fully take effect. Any hosts with QLogic Host Channel Adapters will not need to be rebooted.

  Due to Mellanox Host Channel Adapters not correctly handling changes to the Fabric Manager SL, Qlogic recommends that all the hosts using Mellanox ConnectX or ConnectX-2 Host Channel Adapters be rebooted when used in a virtual fabric configuration.

- When Dispersive Routing is enabled, it allows packets sent using an MPI program run over PSM to take any one of several routes through a fabric, thus often increasing performance. The number of routes is determined by the value of 2 to the power of the Lid Mask Control setting (LMC). Because LMC defaults to 0, the default number of routes through the fabric is 2^0 or 1. LMC can be set as high as 3, allowing a total number of 23 or 8 routes through the fabric. Providing these additional routes can reduce fabric congestion, and thus improve performance. Dispersive Routing is supported when the Qlogic Fabric Manager is used in the fabric. Dispersive Routing is not supported when using OpenSM.

- The recommended tuning for nodes with dual six-core Intel Xeon 5600 Series (Westmere) processors is to configure the Truescale Host Channel Adapters for 14 contexts, for improved message rate and small message performance. The `cfgctxts` driver parameter can be specified in the `/etc/modprobe.conf` file to configure the contexts appropriately. For example, add the following line to `modprobe.conf`:

  ```
  options ib_qib pcie_caps=0x51 cfgctxts=14
  ```

- Note that the current release of mvapich2 may have a memory management issue on certain machines and certain MPI applications. If MPI applications hang when using MVAPICH2, try using these settings with your application:

  ```
  MV2_IBA_EAGER_THRESHOLD=16384 MV2_VBUF_TOTAL_SIZE=16384
  ```

  When using QLogic's sample applications, these settings can be passed using the `ofed.mvapich2.params` file (in `/opt/iba/src/mpi_apps` folder). For other applications, they can be passed as part of the `mpirun` command.

- When running MVAPICH2, QLogic recommends turning off RDMA fast path. To turn off RDMA fast path, specify `MV2_USE_RDMA_FAST_PATH=0` in the `mpirun_rsh` command line or set this option in the parameter file for mvapich2.

- Older QLogic InfiniPath 2.2.1 and prior releases will not be recognized in the installation menus and will be treated as if no InfiniBand software is installed.

- When upgrading from an older QLogic OFED+ release to a new QLogic OFED+, the older QLogic OFED+ release will be uninstalled first.

- When installing the OFED Debug Info component, make sure that `~/.rpmmacros` does not have any lines changing the %debug_package macro.

  If %debug_package is set to %{nil}, debuginfo RPMs will not be available for installation.
  The current setting for this parameter can be verified using:

  ```
  rpm --eval '%{debug_package}'
  ```

- If a non-blank output occurs, then debuginfo is enabled. If a blank line is output, then debuginfo is disabled on the present system.

- When running QLogic SRP over two ports in round robin mode, performance is degraded.

- When running verbs-based benchmarks such as `ib_send_bw`, the following message may appear:

  ```
  BUG: soft lockup - CPU#1 stuck for 10s.
  ```

  This message does not impact completion or correctness of the benchmark.

- The `ib_send_bw` benchmark, when run in UC mode, is written such that it will hang if even one packet is dropped.

- The QLogic 12000 series switch firmware must be at version 6.0.0.1.2 or later to connect with the TrueScale Host Channel Adapters in this release.

- QLE7240/QLE7280 performance with Barcelona stepping B2 and the BIOS/kernel workaround for AMD errata 298 can lead to reduced InfiniBand bandwidth, as a result of poor memory bandwidth and latency on the adapters due to the workaround. To fix this problem, upgrade to Barcelona stepping B3 (or later).

- `mpirun-debug` option fails to open xterm windows. A race condition may occur when there are multiple processes trying to lock the `$HOME/.Xauthority` file concurrently. An error similar to this may occur:

  ```
  /usr/X11R6/bin/xauth: error in locking authority file
  /home/<user>/.Xauthority
  ```

  Disable X11 forwarding by setting the environment variable $MPI_SHELL_X='ssh -x'. Then set the DISPLAY environment variable with the mpirun -display option. For example:

  ```
  env MPI_SHELL_X='ssh -x' mpirun -debug -display\
  <X11_display_hostname:display_number.screen_number> [...] (continued on
  same line)
  ```

- An SRP write performance bug between QLE7240/QLE7280 and LSI (Engenio) storage systems was fixed. To apply this fix, modify the `srp_sg_tablesize` and `max_sect` parameters. To modify `srp_sg_tablesize`, do one of the following:
  - Add the following line to `/etc/modprobe.conf`:

    ```
    options ib_srp srp_sg_tablesize=80
    ```

  - Define `srp_sg_tablesize` when adding the `ib_srp` module (as root):

    ```
    modprobe ib_srp srp_sg_tablesize=80
    ```

  - If using srp_daemon, modify `max_sect` by adding the following command to `/etc/srp_daemon.conf` file:

    ```
    a id_ext=200500A0B81146A1,ioc_guid=00a0b80200402bef,max_sect=2048
    ```

- To ensure proper operation of MPI, the QLogic OFED+ INSTALL sets the memory locking limits in the `/etc/security/limits.conf` file to unlimited, due to the large amounts of memory needed to run the MPIs. Open MPI recommends using unlimited ulimits for lockable memory. For more information, see:

  http://www.open-mpi.org/faq/?category=openfabrics#ib-locked-pages

  An alternative is to use the `--mca mpi_leave_pinned 1` option with mpirun.

- When users increase the number of processes beyond the number of open files allowed by ulimit, mpirun prints an error message. The ulimit for the number of open files is typically 1024 on both Red Hat and SLES. The message will look similar to the following:

  ```
  MPIRUN.up001: Warning: ulimit for the number of open files is only 1024,
  but this mpirun request requires at least number of files open files
  (sockets). The shell ulimit for open files needs to be increased. This is
  due to limit:

  descriptors 1024
  ```

  The ulimit can be increased; QLogic recommends an increase of approximately 20 percent over the number of CPUs. For example, in the case of 2048 CPUs, ulimit could be increased to 2500: `ulimit -n 2500`. Increase the ulimit only on the host where `mpirun` was started, unless the mode of operation allows mpirun from any node.

6 Trademarks

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8 Contacting Support

Please feel free to contact your QLogic approved reseller or QLogic Technical Support at any phase of integration for assistance. QLogic Technical Support can be reached by the following methods:

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